

CLAIMS

What is claimed is:

- 5 1. An apparatus comprising: a handpiece providing, at a distal end thereof, an axial cannula, the handpiece further providing an axial channel for accepting a sleeve of an optical fiber, the axial channel terminating at the axial cannula; the axial cannula of such size as to receive advancement of the optical fiber therewithin, while blocking advancement of the sleeve; a hollow compression cap engaged within a proximal end of the axial channel; the
10 compression cap providing a means for gripping the sleeve upon advancement of the compression cap into the channel, so as to selectively prevent axial motion of the sleeve and optical fiber.
- 15 2. The apparatus of claim 1 wherein the compression cap is threaded into the channel by converging threads; the gripping means comprising axially oriented fingers, arranged and positioned to close on the sleeve upon advancement of the compression cap into the channel.
3. The apparatus of claim 2 wherein the fingers are enabled for closing only to a diameter that is larger than a selected commercially available medical optical fiber.
- 20 4. The apparatus of claim 1 wherein the cannula is made, at least partially, of a super-elastic memory metal and is axially non-linear.
5. The apparatus of claim 4 wherein the super-elastic memory metal is Nitinol®.
- 25 6. The apparatus of claim 1 further comprising a compressible tube positioned and restrained at a proximal end of the channel and axially compressible by advancement of the compression cap, thereby providing a gripping force on the sleeve.

7. An apparatus comprising in combination: a handpiece providing, at a distal end thereof, an axial cannula, the handpiece further providing an axial channel terminating in a shoulder; a sleeve, coaxially fixed about an optical fiber, set axially within the axial channel and terminating at the shoulder; the axial cannula of such size as to receive advancement of the
5 optical fiber therewithin, while the sleeve is blocked by the shoulder; a hollow compression cap engaged within a proximal end of the axial channel; the compression cap providing a means for gripping the sleeve upon advancement of the compression cap into the channel, so as to selectively prevent axial motion of the sleeve and optical fiber.
- 10 8. The apparatus of claim 7 wherein the compression cap is threaded into the channel by converging threads; the gripping means comprising axially oriented fingers, such that advancement of the compression cap into the channel closes the fingers onto the sleeve for thereby gripping the sleeve.
- 15 9. The apparatus of claim 7 wherein the fingers are enabled for closing only to a diameter that is larger than a selected commercially available medical optical fiber.
10. The apparatus of claim 7 wherein the cannula is made, at least partially, of a super-elastic memory metal and is non-linear.
- 20 11. The apparatus of claim 10 wherein the super-elastic memory metal is Nitinol®.
12. The apparatus of claim 7 further comprising a compressible tube positioned and restrained at a proximal end of the channel and axially compressible by advancement of the
25 compression cap, thereby providing a gripping force on the sleeve.
13. A method of limiting the reuse of an optical fiber comprising the steps of: providing, at a distal end of an axial channel in a handpiece, an axial cannula; setting a sleeve coaxially about an optical fiber and within the axial channel; forming the sleeve of a size larger than

the axial cannula; advancing the optical fiber within the axial cannula; engaging a hollow compression cap within a proximal end of the axial channel; providing a means for gripping the sleeve upon advancement of the compression cap into the channel, so as to selectively prevent axial motion of the sleeve and optical fiber.

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14. The method of claim 13 further comprising threading the compression cap into the channel through converging threads; tightening axially oriented fingers during advancement of the compression cap into the channel to thereby close the fingers onto the sleeve for gripping thereof.

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15. The method of claim 13 further comprising positioning a compressible tube restrained at a proximal end of the channel, and advancing the compression cap axially thereby compressing the tube to produce a gripping force on the sleeve.

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16. A method of limiting the reuse of an optical fiber comprising the steps of: providing a handpiece having, at a distal end thereof, an axial cannula, the handpiece further providing an axial channel terminating in a shoulder; placing a sleeve, coaxially fixed about an optical fiber, axially within the axial channel and terminating the sleeve at the shoulder; advancing the optical fiber within the axial cannula while blocking advancement of the sleeve by the shoulder; engaging a hollow compression cap within a proximal end of the axial channel; providing the compression cap with a means for gripping the sleeve upon advancement of the compression cap into the channel, so as to selectively prevent axial motion of the sleeve and optical fiber.

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